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Project-Focused Approach Facilitates Benguela-Belize Success

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Abstract

From the outset of the Benguela-Belize Compliant Piled Tower project, the Gulf Marine Fabricators (GMF) management team established a target of finding a better way to plan and execute its portion of the project - the fabrication of the tower's 12 main piles and its top section .

This paper initially provides a brief overview of GMF's scope of work and then expands on the role of the fabricator and the challenges of this large fast track EPCI project, which necessitated a breaking with the traditional fabrication industry approaches to planning and execution. Many challenges were often broad in definition, encompassing engineering, schedule, materials supply, overall project coordination, traditional safety management and other project facets which all had to be addressed.

Rather than being narrowly defined as in traditional issues such as early decisions, avoidance of late change and approval cycles, the GMF approach included opportunities for 'out of the box' thinking and total personnel involvement. However, the foundation rules for this step change improvement remained with the requirement for overriding priorities on safety, quality, planning and client involvement.

Gulf Marine Fabricators did not find all of the answers, but feel strongly that the results – a World Class incident and injury-free safety effort, on time deliverables and high quality with low rework and repair rates, bear testimony to the successful project approach. This experience has placed GMF in a strong position to deal with the future of the industry. From an overall perspective, GMF are very proud to have been played an integral part in an extraordinary achievement with the successful delivery of the schedule-driven Benguela-Belize project.

Introduction

The foundation piling and tower fabrication of Benguela-Belize Compliant Piled Tower (CPT) was a daunting task. This complex and fast track project posed significant safety, quality, material availability and schedule challenges requiring a non-traditional fabrication approach. The key to success for Gulf Marine Fabricators' (GMF) participation resided in its creation of an innovative project-focused methodology.

Scope of Work

Gulf Marine Fabricators, subcontracted by Daewoo Shipyard and Marine Engineering (DSME) for their EPCI contract with Chevron Corporation, was responsible for two main deliverables on the Benguela-Belize project. The first was the fabrication of the project's 12 main piles. The world's largest single-piece foundation piles were nine feet in diameter, constructed from rolled plate up to four inches thick, weighing between 830 and 900 tons each and ranging in approximate length from 590 to 625 feet (Photograph 1.)

The second deliverable was the construction of the top section of the CPT tower, approximately 600 feet in length and weighing approximately 12,000 tons. (Photograph 2.) Both aspects of the project were awarded in October 2003 as critical path items requiring meticulous planning in order to meet the aggressive delivery schedule of September 2004 for the piles and January 2005 sailaway date for the tower section from the Ingleside, Texas fabrication facility

Breaking With Tradition

Traditionally, fabrication companies execute their projects using a "yard operating" vertical organization approach. In this fashion, the fabricator takes direction from the client and funnels information down to functional yard superintendents through the project manager. Communication among yard functions is limited and independent of one another. Each function forms its own protective "silo", largely concerned with only its singular portion of the project. An understanding and ownership of the total project scope is difficult in such circumstances. As such, cooperation and initiative for value-added improvements is limited and has to be found in areas such change avoidance, reduced approval cycles and procurement efficiencies. This approach often leads to negative behavior, blaming and adversarial relationships. These problems, in turn, foster extended schedules, quality issues, rework and ongoing safety concerns. This traditional rules-oriented execution methodology would not be conducive